Transport Observations Across the Korea/Tsushima Strait

W.J. Teague, G.A. Jacobs, H.T. Perkins, J.W. Book, P.A. Hwang and J.M. Dastugue

teague@nrlssc.navy.mil, Naval Research Lab, Stennis Space Center MS, USA 39529-5004

The Tsushima Current flows from the East China Sea to the Japan/East Sea via the Korea/Tsushima Strait. Volume transports and the variability across the strait are of high interest. Between May 1999 and March 2000, ADCP measurements were made in the strait to examine the transport. The Tsushima Current transport, averaging 2.65 Sverdrups, is split into two cores by Tsushima Island which divides the strait into eastern and western channels. Transport in the western channel is 23% higher than in the eastern channel over the measurement period. Some seasonality in transport variability is observed for both the western and eastern channels. Transports are largest in fall and smallest during winter. Transport variations across the strait are large, particularly in the lee of Tsushima Island where a countercurrent commonly exists. A wake zone that averages 40 km in width is observed downstream of Tsushima Island and appears to follow island wake zone dynamics. Reynolds numbers can range from 22 to 90 in the wake zone and eddy shedding can occur throughout the year. EOF analyses indicate total transport variations in summer are due mainly to transport variations near the Korea coast, while in winter, contributions to total transport variations are more uniformly distributed across the strait.